

What is claimed is:

1. A game apparatus comprising:

*See B27*  
a body including a first control device for transmitting and receiving data required in terms of a advancement in a game; and

game parts each including a data carrier having a second control device for transmitting and receiving driving electric power as well as for mutually transferring the data between said game part and said body, and a multi-value memory stored with information containing the identifying information,

said multi-value memory being provided a plurality of multi-value cells, each of said cells being capable of storing one from states which are taken by three or more predetermined values as storing information.

2. A game apparatus comprising:

an apparatus body having apparatus-side control means for controlling a whole apparatus; and

a plurality of pieces, each incorporating a data carrier for transmitting driving electric power and performing mutual communications in non-contact with said apparatus body, to which different values are allocated,

wherein a win and a defeat are determined based on the values of the pieces selected by opponents among said plurality of pieces.

3. A game apparatus comprising:

an apparatus body; and

a plurality of small playing members each having a data carrier for transmitting driving electric power and performing mutual communications with said apparatus body,

wherein the number of points is added by said apparatus body when a change is given from the outside to an arbitrarily selected small playing member among said plurality of small playing members under a predetermined

condition.

4. A data carrier comprising:

an information receiving unit for receiving information from the outside;

a multi-value memory stored with data necessary for processing and/or with a program; and

a control unit for executing a process on the basis of the information received by said information receiving unit and a storage content of said multi-value memory, a game apparatus comprising:

a body including a first control device for transmitting and receiving data required in terms of a advancement in a game; and

game parts each including a data carrier having a second control device for transmitting and receiving driving electric power as well as for mutually transferring the data between said game part and said body, and a multi-value memory stored with information containing the identifying information,

said multi-value memory being provided a plurality of multi-value cells, each of said cells being capable of storing one from states which are taken by three or more predetermined values as storing information.

5. An information communication method of transmitting and receiving information between a reader and a non-contact type data carrier in a non-contact manner, said method comprising:

a first step of transmitting a radio wave from said reader;

a second step of receiving the radio wave transmitted from said reader through a coil and generating operating electric power of said non-contact type data carrier;

a third step of detecting that said operating power generating means generates a predetermined quantity of electric power and notifying said reader of this detec-

tion;

a fourth step of interrupting the transmission of the radio wave from said reader when notified of the effect that the predetermined quantity of electric power is generated;

a fifth step of resuming the transmission of the radio wave when a predetermined time elapses since the transmission of the radio wave was interrupted;

a sixth step of making a judgement about the surface and the underside of a card body on the basis of a direction of an electric current induced in said coil when the transmission of the radio wave resumes;

a seventh step of operating a first function provided in said data carrier when judging in said sixth step that the surface of said card body is set in a required direction; and

an eighth step of operating a second function provided in said data carrier when judging in said sixth step that the underside of said card body is set in the appropriate direction.

6. An information communication system comprising:

a data carrier having an information receiving unit for receiving information from the outside, a multi-value memory and a control unit for executing a process for the outside on the basis of the information received by said information receiving unit and a storage content of said multi-value memory; and

a reader for executing a process by transmitting necessary information to said data carrier and receiving the radio wave transmitted from said data carrier, a game apparatus comprising:

a body including a first control device for transmitting and receiving data required in terms of an advancement in a game; and

game parts each including a data carrier having a second control device for transmitting and receiving

driving electric power as well as for mutually transferring the data between said game part and said body, and a multi-value memory stored with information containing the identifying information,

said multi-value memory being provided a plurality of multi-value cells, each of said cells being capable of storing one from states which are taken by three or more predetermined values as storing information.

7. The information communication system according to claim 6, wherein said multi-value memory stores data necessary for processing and/or a program.

8. The information communication system according to claim 6, wherein said multi-value memory stores data for identifying an individual.

9. The information communication system according to claim 6, wherein said data carrier further comprises a contact terminal part at which transmitting and receiving are performed by touching it to a part of an external device, whereby the carrier functioning as a contact type data carrier.

10. The information communication system according to claim 6, wherein said information receiving unit of said data carrier includes an antenna and receiving means for obtaining necessary electric power and information through an electro-magnetic induction by the radio waves transmitted outside and received by said antenna.

11. The information communication system according to claim 10, wherein said receiving means includes a resonance circuit and operation power generating means for outputting electric power obtained by said resonance circuit.

12. The information communication system according to claim 6, wherein said multi-value memory stores data for identifying an individual carrying said data carrier.

13. The information communication system according to claim 9, wherein said data for identifying an individual include at least one of a driver's license data, passport data, a bank account number for a financial institute, physical features data, DNA data, fingerprint data and voiceprint data, etc

14. The information communication system according to claim 6, wherein said multi-value memory stores information on an object moving said data carrier.

15. The information communication system according to claim 6, wherein said data carrier includes positional relationship detecting means for detection a positional relationship with respect to said receiving means, and function selecting means for executing a process corresponding to a result of the detection by said positional relationship detecting means.

16. An automated traveling control system for executing a process corresponding to a kind of a carrier object traveling by a gate, comprising:

first and second gates;

a carrier object traveling by said first and second gates and mounted with an inquiry machine for transmitting a radio wave containing information;

a partition wall for partitioning said first and second gate from each other; and

a non-contact type data carrier embedded into said partition wall and including a control unit for detecting which side of said first or second gate by receiving the incoming radio wave transmitted from said inquiry machine and executing an opening/closing process of said gate at

least on the relevant side depending on any one of said first and second gate sides.

17. A readable medium stored with a program code for making a computer transmit and receive information between a data carrier reader and a non-contact type data carrier in a non-contact manner, said readable medium being stored with:

first code means for executing a first step of transmitting a radio wave from said data carrier reader;

second code means for executing a second step of receiving the radio wave transmitted from said data carrier reader through a coil and generating operating electric power of said non-contact type data carrier;

third code means for executing a third step of detecting that said operating power generating means generates a predetermined quantity of electric power, and notifying said data carrier reader of this detection;

fourth code means for executing a fourth step of interrupting the transmission of the radio wave from said data carrier reader when notified of the effect that the predetermined quantity of electric power is generated;

fifth code means for executing a fifth step of resuming the transmission of the radio wave when a predetermined time elapses since the transmission of the radio wave was interrupted;

sixth code means of executing a sixth step of making a judgement about the surface and the underside of said data carrier on the basis of a direction of an electric current induced in said coil when the transmission of the radio wave resumes;

seventh code means for executing a seventh step of operating a first function provided in said data carrier when judging in said sixth step that the surface of said data carrier body is set in a required direction; and

eighth code means for executing an eighth step of operating a second function provided in said data carrier

when judging in said sixth step that the underside of said data carrier is set in the appropriate direction.

18. A data carrier comprising:

an antenna for receiving a radio wave;

information communicating means for receiving radio wave information from the outside through said antenna, obtaining necessary electric power and information by electro-magnetic induction, and transmitting a result of processing;

a multi-value memory having a multi-value memory cell which has a control gate and a charge storage layer for taking at least three storage statuses and which stores one of the at least three storage statuses; and

a control unit for executing a process with respect to the outside on the basis of the information received by said information communicating means and a storage content of said multi-value memory.

19. The data carrier according to claim 18, wherein said multi-value memory stores data necessary for processing and/or a program.

20. The data carrier according to claim 18, wherein said multi-value memory stores data for identifying an individual.

21. The data carrier according to claim 20, wherein said data for identifying an individual include at least one of a driver's license data, passport data, a bank account number for a financial institute, physical features data, DNA data, fingerprint data and voiceprint data, etc.

22. The data carrier according to claim 18, wherein said multi-value memory stores information on an object moving said data carrier.

23. The data carrier according to claim 18, further comprising a contact terminal part at which transmitting and receiving are performed by touching it to a part of an external device, whereby the carrier functioning as a contact type data carrier.

24. The data carrier according to claim 18, wherein said information communicating means includes:

a resonance circuit;

operating power generating means for outputting the electric power obtained by said resonance circuit.

25. The data carrier according to claim 18, wherein said multi-value memory is stored with information required in terms of an advancement in a game.

26. A data carrier comprising:

generating means for operating electric power by receiving a radio wave transmitted from an outside reading machine through a coil;

notifying means for notifying said reading machine of detecting that said generating means generates a predetermined quantity of electric power;

judging means for making, when a transmission of the radio wave from the reading machine is interrupted and thereafter resumes after said notifying means has given a notification, a judgement about the surface and underside of a card body on the basis of a direction of an electric current induced in said coil;

first function means operating when said judging means judges that the surface of the card body is set in an appropriate direction; and

second function means operating when said judging means judges that the underside of the card body is set in the appropriate direction.

27. The data carrier according to claim 26, wherein



said data carrier comprising:

an antenna for receiving a radio wave;

information communicating means for receiving radio wave information from the outside through said antenna, obtaining necessary electric power and information by electro-magnetic induction, and transmitting a result of processing;

a multi-value memory having a multi-value memory cell which has a control gate and a charge storage layer for taking at least three storage statuses and which stores one of the at least three storage statuses; and

a control unit for executing a process with respect to the outside on the basis of the information received by said information communicating means and a storage content of said multi-value memory.

28. The data carrier according to claim 26, wherein said multi-value memory stores data necessary for processing and/or a program.

29. The data carrier according to claim 26, wherein said multi-value memory stores data for identifying an individual.

30. The data carrier according to claim 29, wherein said data for identifying an individual include at least one of a driver's license data, passport data, a bank account number for a financial institute, physical features data, DNA data, fingerprint data and voiceprint data, etc.

31. The data carrier according to claim 26, wherein said multi-value memory stores information on an object moving said data carrier.

32. The data carrier according to claim 26, further comprising a contact terminal part at which transmitting

and receiving are performed by touching it to a part of an external device, whereby the carrier functioning as a contact type data carrier.

33. The data carrier according to claim 26, further comprising:

a memory for storing data necessary for identification and actualizing said first and second functions.

34. The data carrier according to claim 26, wherein said judging means is constructed of a current judging circuit for judging a direction of the electric current, and a surface/underside judging circuit for making the judgement about the surface and the underside in accordance with the direction of the electric current.

35. The data carrier according to claim 26, wherein said first and second function means constitute a part of said CPU.

36. The data carrier according to claim 34, wherein said surface/underside judging means constitutes a part of said CPU.

37. The data carrier according to claim 26, wherein said data carrier is incorporated into each of a plurality of pieces for a game.

38. The data carrier according to claim 27, wherein each of said data carriers stores said memory with identifying information of the piece into which to incorporate said data carrier.